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ABSTRACT

Of the twenty-three vocational education projects funded during fiscal year 1975 under the U.S. Office of Education priority "Management Information Systems," the sixteen project reports available for review are analyzed in this report. Focus is on management information system development efforts as described in the reports, the intent being to identify the level of development in relation to predetermined criteria. The review is organized in two main sections. The first includes (1) introduction (noting the legislative intent); (2) definition of management information systems (MIS); (3) criteria for reviewing reports (twelve MIS factors which are divided into three categories: developmental, technical, and human/organizational); (4) numbering system for rating reports; (5) results; and (6) fourteen conclusions and recommendations. Among the results noted are these: MIS factors were found to be applicable to only ten of the sixteen reports; in these, developmental factors were rated highest and human/organizational factors lowest; and reports demonstrate general knowledge of basic MIS development principles with considerable room for improvement. The second section includes the author's one- or two-page analysis of each of the sixteen individual reports. Each contains project purpose and summary, comparison of the report to MIS criteria, and general concluding comments. Appended are a list of all twenty-three final reports by state and a one-page abstract of each project not included in the review. (JT)

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Information Series No. 128

MANAGEMENT INFORMATION SYSTEMS

A Review and Synthesis of Projects Funded During FY 1975 Under the Vocational Education Amendments [P.L. 90-576, Section 131(a) of Part C]

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U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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FOREWORD

Efforts to make vocational education more responsive to the needs of society and the individual have given increased urgency to the development of management information systems. The U.S. Office of Education made a substantial investment in this development under its Fiscal Year 1975 research priority. To capitalize on this investment, it requested that this review and synthesis be conducted so that the cumulative result of several research grants could be examined.

Special recognition should be given to the author, Erwin K. Geigle, Senior Consultant, Minnesota State Department of Education, who reviewed all of the reports, analyzed each, and prepared this document. Also deserving of special recognition are members of a review panel which made initial input, reviewed a draft version, and met with the author to make recommendations for the final draft. Panel members were:

James W. Atteberry, Research Specialist, National Center for Research in Vocational Education

Elton B. Mendenhall, Director, Research Coordinating Unit, Nebraska

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Recognition also is given to Carol P. Kowle and other members of the AIM/ARM Project staff who were involved in management and other aspects of the effort.

This paper is one in a series of information analysis efforts conducted by the National Center since its inception thirteen years ago. We welcome suggestions for the improvement of our information analysis series.

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

AUTHOR'S PREFACE

This report is a review and synthesis of projects funded during Fiscal Year 1975 under the USOE priority "Management Information Systems." Funding was under the Vocational Education Amendments of 1968 [Public Law 90-576, Section 131(a) of Part C]. The purpose of the projects was to assist the states in developing management information systems (MIS) for vocational education. Although the funding was intended for MIS development, every state did not necessarily focus on the intended purpose, but on related activities. At the time of this writing, 16 of the 23 project reports were available for review.

A review and synthesis of this nature has inherent limitations. These include such considerations as the fact that:

- not all projects could be included for review;
- in some cases reporting of information relevant to the conduct and results of the project was incomplete;
- there was some difficulty in interpreting reported information;
- the quality of the reports was not consistent.

At the same time, this document could not be a status report on management information system development because other work has been underway as well.

This review focused upon management information system development efforts as described in the 16 reports. The intent was to identify the level of development in relation to predetermined criteria. As a result, U.S. Office of Education research program administrators can assess the impact of USOE-sponsored projects on state vocational education management information system development. States initiating MIS development efforts also may profit from the synthesis reported in this document.

The review is organized in two main sections. The first includes the introduction, definition of Management Information Systems, rationale and criteria for reviewing reports, procedure for rating reports, results, and conclusions and recommendations. The second section includes the author's analysis of each of the 16 individual reports. Listings of the projects reviewed as well as those unavailable for review appear in appendices

Although care was taken to prevent misinterpretations of the report contents (e.g., every final report was reviewed by at least two people), some misunderstanding may have occurred. The author takes full responsibility for any inaccuracy or misrepresentation of information in this report.

Without the valuable input of the review panel, this document may not have materialized in its present form. The cooperation, encouragement, and constructive criticism of Dr. Carol P. Kowle, Research Specialist at the National Center, was greatly appreciated.

Erwin K. Geigle

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MANAGEMENT INFORMATION SYSTEMS

INTRODUCTION

Educators as well as those external to the institution of education frequently question whether the federal government is wasting tax dollars by funding research and development in education. Some educational practitioners have indicated that if they received the federal monies which are presently allotted to research, they could accomplish more toward improving the quality of education.

Unfortunately, as both advocates and critics of research and development efforts agree, the situation is more complex than this type of comment suggests. Local schools are charged with the education of people and tax dollars are provided to assist schools in carrying out that charge. Two basic questions which emerge in this context are the following: (1) Did the schools educate people effectively? and (2) Were the tax dollars spent efficiently? The first question is one of program accountability while the second is one of financial accountability. Together, the two questions address concern over what is happening in schools and how tax monies are spent by schools.

To further complicate the issue of accountability, other concerns related to programmatic development have arisen within recent decades. The following questions are representative of these concerns: Do the economically disadvantaged have equal opportunities to receive a high quality education? Is remedial instruction available to underachievers? Do males and females have equal opportunities to participate in specific educational programs? Are minorities given equal access to instructional programs? Is vocational education as available to handicapped students as it is to others? National and state legislation has been passed to ensure that schools are accountable for concerns of this nature. As a result, schools are required to provide information which demonstrates that they are meeting the intent of the legislation in addition to the intent of basic programmatic and fiscal accountability.

The questions and issues identified above have meant that educational accountability has been pursued more rigorously in the last two decades than previously. The tax paying public in general and numerous education consumer groups in particular are not satisfied that schools are meeting the requirements of state and federal statutes. Demonstration of educational accountability implies record keeping and the systematic collection of data or information. State departments of education are held responsible for information for accountability in a legal sense. Demonstrating accountability is the basis for gathering data on a state or national level.

Another concern of equal importance for the collection of programmatic information is that the data can be used in planning and decision making at the local, state, and federal levels. Accurate and valid data presented in the proper format and at the appropriate time can increase the probability of effective decision making and enhance the planning process in education.

Recently, concern over accountability has been focused on vocational education and its ability to provide people with the necessary skills, knowledge and attitudes for successful employment. As with every other educational function for which tax dollars are being spent, vocational education is being held accountable for its mission and expenditures. Information is required to prove accountability as well as to improve planning and decision making within vocational education. Since federal tax dollars are augmenting vocational instruction, the federal government has set aside a small portion of vocational education monies to assist states in the accountability process through the development of management information systems (MIS). With functional management information systems, states should be able to demonstrate more easily what is happening in vocational education. Also, state vocational education planning and decision making can be improved with the assistance of management information systems.

During fiscal year 1975 (FY75), the U.S. Office of Education funded twenty-three research and development projects under the Vocational Education Amendments of 1968, P.L. 90-576, Section 131(a) of Part C (Research and Training in Vocational Education), to assist states in developing management information systems for vocational education. This report is a review and synthesis of the twenty-three projects, although only sixteen of the twenty-three final reports were available at the time of the review.

DEFINITION OF MANAGEMENT INFORMATION SYSTEMS

The term "management information system" (MIS) has not always been consistently defined. A list of the many ways in which the term has been defined was developed by the Society for Management Information Systems (Dickson, 1970). It has been defined differently by individuals working in different organizations. Sometimes the term has even been equated with simple data processing. It is necessary, therefore, to establish one definition to be used throughout this review.

According to Senn (1977), the basic focus of management information systems is to provide decision support to the administration or management of an organization. An ideal MIS should provide accurate, reliable, and timely output to support decision making. In larger organizations or on a statewide basis, this normally involves the use of computer systems, although computer systems are not assumed necessary for an operating management information system.

The word "management" in the term "management information system" implies that the data in the system is used for managing, controlling, planning, or possibly even developing policy. If management uses the data or information, this implies that an appropriate format was used, a sophisticated data analysis was used at least occasionally, and the format included standardized measurement units, forecasting techniques, and so on. The information can then be used effectively for decision support and planning (Horton, 1972). On the other hand, if the information is *not* used by management, the management information system is essentially an information system. An information system has as its primary function documentation of action and expenditure (program and fiscal accountability).

Based on the preceding discussion, a management information system can be conceived as an organized method for data capture, recording, storage, update, retrieval, analysis, and output. In this process, the data is consistently collected (internally and externally to the organization), condensed, and filtered until it becomes information. The information is used for accountability documentation (reporting) and improving planning and decision making.

RATIONALE AND CRITERIA FOR REVIEWING REPORTS

The purpose of this review was not to criticize *individual* reports or *individual* management information system (MIS) development efforts. Rather the intent was to evaluate the *total* MIS effort on the basis of the review of the combined reports. Each individual report was examined in terms of its goals and outcomes. Each was compared to basic principles of MIS development and a few general comments were made.

Before the reports could be adequately reviewed, it was necessary to determine criteria which reflected MIS development principles and to develop an objective and fair analysis scheme. Establishing such a scheme was a challenging process. Moravec (1970) reports that analyzing a corporate data system is still a primitive process. DeGreene (1973) also contends that establishing criteria for information system analysis remains one of the "thorniest" problems. In his monograph on MIS planning and development, however, Blumenthal (1969) provided some insight into criteria development for reviewing purposes. Several chapters in a work edited by Rappaport (1970) were also helpful in formulating the basic principles of MIS development. In a working paper from the School of Management at the State University of New York at Binghampton, Senn (1977) identified the basic concept of information systems development. Senn differed with Blumenthal and DeGreene on several points (e.g., degree to which MIS should be used for planning and policy development). Nevertheless, enough consistency existed among the major works cited for this writer to identify a framework of principles or factors involved in MIS development which to a large extent coincided with Senn's essential principles of information system development.

For the sake of consistency, a list of twelve factors was established as representing the basic principles of MIS development. The twelve factors were divided into three categories: developmental, technical, and human/organizational factors. In the second section of this review, the twelve factors are used in "rating" the MIS development within each of the sixteen reports. Each factor has at least two questions associated with it, illustrating the type of evidence being sought in the reports. The questions are followed by a statement suggestive of the purpose and/or importance of the respective factors. Wherever possible, each factor or criterion is referenced to the publication from which it has been taken.

MIS DEVELOPMENT CRITERIA

I. DEVELOPMENTAL FACTORS

A. *Organizational Need for Information* (Senn, 1977)

- Does the system provide information previously not readily available?
- Does the system provide information already available, but with less difficulty, greater reliability and/or accuracy?
- The MIS will be integrated into the managerial process in a natural manner since it will be filling a void in the information network.

B. *Prioritizing the Development of Information Systems* (Cougar and Wergin, 1974)

- Does the information system coincide with a function of the organization?
- Does the information system decrease data processing time while increasing accuracy and/or reliability?
- Is the information system easily converted into an MIS framework?

+ As information systems are developed, first priority should be given to those systems that coincide with the structured functions of the organization.

C. *Compatability of Intra-Organization Information Systems* (Blumenthal, 1969)

- Will the data which may be collected, stored, and/or outputed by the various functional areas of the organization be compatible?
- Can the information be used by all functional areas within the organization?
- Can the information be used to make decisions which cut across functional areas?

+ Compatibility of information systems provides a uniform body of detail and knowledge which aids in reducing uncertainty of decisions made within functional areas as well as those made by the total organization.

D. *Data as the Focus of MIS* (Withington, 1974)

- Are the data considered the central resource of the MIS?
- Is the emphasis upon the data as opposed to hardware and software?
- Does the MIS focus upon the accuracy of the data versus the ease, for example, of data retrieval?
- Are the data recognized as the key to a successful MIS and, therefore, properly controlled and managed?

+ The credibility of an effective MIS is dependent upon the accuracy of data. Manufacturers of computer hardware and vendors of data system services do not always pay proper respect to the role of data in automated information systems.

II. TECHNICAL FACTORS

A. *Data Base in MIS* (Everest, 1974)

- Is data capture consistently performed?
- Are data recorded and stored according to precise rules?
- Is the data base sufficiently controlled over time so that reliable projections can be made from the data?

- Are data element definitions consistent throughout the organization?
- Can the data base be adaptable to the diverse demands placed upon it over time and still retain its reliability and integrity?
- Can the data base be restructured as a result of organizational requirements and/or technological improvements in the system without effect upon information users?

+ The data base must be capable of evolving with the organization and still be able to respond to continuous information needs.

B. *Data Independence* (Senn, 1977)

- Are the data stored in the most efficient manner?
- Are the data accessible by all functional areas of the organization?
- Does the manner in which the data are stored determine the form of the data output?

+ The information requirements of individual users should be independent of the stored versions of the data.

C. *The Management of Information* (Senn, 1977)

- Have monitoring activities been developed for updating the MIS in terms of new user requirements, advances in hardware and software, and restructuring of the data base?
- Have policies been developed regulating data requests, confidentiality of data, and enhancement of systems?

+ Like any organizational function, the MIS has to be managed.

D. *Evaluation of MIS* (Boyd and Krasnow, 1968)

- What evaluation strategies have been developed for determining the effectiveness of the MIS?
- What evidence exists to suggest tangible and intangible benefits such as timeliness of output, user satisfaction, and accuracy of projections are accruing to the MIS?

+ Documenting the benefits of the MIS may in part determine its long-range effectiveness. Of course, any activity should be explicitly evaluated.

III. HUMAN/ORGANIZATIONAL FACTORS

A. *Management Support of MIS* (Argyris, 1971; Dean, 1968; Dearden, 1972)

- Is top management staff directly involved in the development of the MIS?

- What provisions were taken to secure top management support?

- Is there any evidence that an appropriate managerial climate—organizational philosophy and attitude—exists for MIS development?

+ Although top management support is necessary, it is not sufficient for successful MIS development and implementation.

B. *Staff Opposition to MIS* (Wolk, 1968)

- What measures have been taken to acquire staff support of MIS?

- What plans have been developed to prevent staff resistance to MIS? (Resistance to the MIS and the change it implies may manifest itself in one or more of three categories: aggression, projection, and avoidance.)

+ The mere logic implied in emphasis on improved performance may not necessarily prevent resistance to the introduction of MIS applications.

C. *User/MIS Development Team* (Powers and Dickson, 1973)

- Are the users of the potential MIS output directly involved in developing the MIS?

- Did the users (managers) and MIS development staff jointly evolve and define MIS goals and objectives?

+ The success of the MIS development effort is dependent upon output users having a clear understanding of the MIS; therefore, direct management involvement and participation is mandatory.

D. *MIS Output/Decision Maker Interaction* (Chervany and Dickson, 1974)

- In terms of the characteristics of the decision maker (e.g., attitudes, training, experience) and the decision environment (e.g., function, level of decision, time pressure), is the information presented in the most appropriate mode in terms of form and medium?

- Is too much information presented?

+ The structure of an MIS can have a significant impact on the effectiveness of management decisions.

PROCEDURE FOR RATING REPORTS AGAINST CRITERIA

Ten of the sixteen reports included in this review could be compared against the criteria. The remaining six reports do not sufficiently concern themselves with information systems development to be rated in relationship to the list of criteria. The six reports (Arkansas, Connecticut, North Carolina, Ohio, Oregon, and Tennessee) are also reviewed in the second section.

Although other methods might be more appropriate to the rating of the ten reports, the procedure used here appears viable. Each report was reviewed in terms of the twelve criteria. Points for each factor were awarded on the basis of the following rating scale:

3 points — Sufficient evidence exists in the report to indicate that the criterion was considered and/or dealt with.

2 points — Inferences can be made based upon the procedures, results, or other evidence to suggest that the criterion was considered and/or dealt with.

1 point — Based upon the report in general, it was possible that the criterion was considered and/or dealt with.

0 points — The criterion was not considered.

Since the criteria are equally divided into the three categories of developmental, technical, and human/organizational factors, three sub-scores can be calculated for each state (see Table 1). The total score for a state is based on the addition of the points awarded on each of the twelve factors. A total score can range from 0 to 36 points, while each of three sub-scores can range from 0 to 12 points. A ratio of points received versus possible points was calculated for each of three sub-scores (factor category scores) and the total score. As an example, in Table 1, Missouri received 11 points for the four developmental factors, which is a ratio of .92 (calculated by dividing the possible 12 points into the 11 points received). The .92 can be referred to as a "ratio of MIS compliance" or RMC. Adding horizontally for a factor would result in a point total for that specific factor and a corresponding RMC. The RMC for a factor across states is calculated by dividing the total possible points into the total points awarded (see Table 1).

Clearly, the rating system is not infallible. The ratings represent one perspective. Neither the categories nor the factors within categories are mutually exclusive. The reader is encouraged to refer to the full report for more detailed information. Appendix A contains a list of the final reports.

RESULTS OF REVIEW

As indicated, when the sixteen reports were weighed against the twelve MIS development factors, only ten were found to be applicable. These include reports from Alabama, Colorado, Missouri, New Hampshire, New Mexico, Puerto Rico, Rhode Island, South Dakota, Texas and West Virginia. The results of this review are focused upon the rating of the ten states according to the criteria. Strengths and weaknesses were identified across states.

The ten states fall into two somewhat distinct groups on the basis of the RMC (ratio of MIS compliance) (see Table 1). Five states, Alabama, Colorado, Missouri, Rhode Island, and Texas, all received an RMC of .67 or higher. Four states, New Hampshire, New Mexico, South Dakota and West Virginia, and the territory of Puerto Rico, received RMC scores of .53 or lower. This "natural" division suggests an identifiable difference between states in terms of MIS development.

Table 2 shows a clear division in the ratings of the twelve MIS development factors. Six criteria had ratios of MIS compliance of .70 and higher, and six received ratios of MIS compliance of .57 or lower. Two factors emphasized by every state were "Organizational Need for Information" and "Data as the Focus of MIS" (RMC = .93 and .90, respectively). These high ratings are understandable, as all states had an expressed need for data. The criterion "MIS Output/Decision Maker Interaction" received the lowest consideration by the states (RMC = .20). Apparently, states have not considered to any degree the most appropriate output format or medium for the target group receiving the information.

Among the three distinct categories of criteria, namely developmental, technical, and human/organizational, the developmental factors combined received an RMC of .78. This suggests strong emphasis on developmental factors on the part of states, although some states appear to neglect the "Compatability of Intra-Organization Information Systems" factor (RMC = .57). Two factors within the technical category (RMC = .58) received low overall ratings. The "Management of Information" and the "Evaluation of MIS" factors received RMC scores of .40 and .47, respectively. The human/organizational criteria category received the lowest emphasis of the three (RMC = .40), although the "Management Support of MIS" factor within that category received a high rating (RMC = .77).

The ten states received an overall ratio of MIS compliance (RMC) of .60, which indicates general knowledge of the basic principles of MIS development. Still, a score of .60 leaves considerable room for improvement.

CONCLUSIONS/RECOMMENDATIONS

The following conclusions/recommendations have resulted from this review:

1. The twelve criteria identifying essential principles of management information systems development can be used as a checklist for states embarking on information systems development for vocational education. In addition, the reports by Alabama, Colorado, Missouri, Rhode Island, and Texas are recommended for review by states initiating MIS development efforts.

2. Regarding MIS development, more attention should be given to (a) compatability of information systems, (b) management of information, (c) evaluation of the MIS function, (d) staff opposition to MIS, (e) coordination between MIS development team and output users, and (f) relationships between the format and/or medium of data presentation and the needs of those receiving the information.

3. The term MIS (management information system) is not used consistently from state to state. A universal definition should be developed to enhance communication.

4. Information systems should be established on a priority basis to coincide with delineated functions of state divisions of vocational education.

5. As part of MIS development, a data-use plan should be developed identifying data elements with corresponding purposes in terms of organizational operations, control, planning, and policy development.

6. Establishing *total* educational information systems (computer-based internal interface/integration systems) may not prove cost-effective for all states. Separate, but compatible, information systems coinciding with state vocational education functions (such as student/employer follow-up and program budgeting and financial reporting) may (a) be economically more efficient, (b) have greater reliability, and (c) prove to be more accurate. Depending on the MIS management process and other considerations, computer-based total educational information systems may be prone to data errors. As a result, the entire MIS is subject to credibility concerns.

7. Computer-based management information systems may not be necessary for all states; for some states, a clerical (manual) MIS may be more appropriate. The feasibility of computer-based systems within states depends on several contingencies such as the level of sophistication of the systems concept, hardware and software parameters, staff capabilities, local school size and location, emphasis upon vocational education, and structure of state government.

8. More time (two to three years) is required for MIS projects to develop properly. Time is needed for conceptualizing, establishing advisory committees, acquiring special staff, obtaining the necessary commitments and cooperation, etc.

9. The state of the art in management information systems appears to have advanced as a direct result of the funding provided. Some states could possibly meet the data reporting requirements of the "Vocational Education Data and Accounting System" (VEDS) as mandated by the Educational Amendments of 1976 (P.L. 94-482). Without additional incentives, other states may need several years to meet the data requirements of VEDS as specified by the National Center for Education Statistics. Of course, the related problem of consistent data element definition across states needs to be addressed if the data is to be collected at the national level.

10. MIS development at the state level should be coordinated with the information function at the local level—greater attention should be given to local data needs.

11. MIS development in vocational education appears to be at the stage where the information function is being systematized. More development is required for vocational education to use information effectively in the planning and decision making process.

12. Although all sixteen studies were funded under the auspices of the MIS priorities for FY75, not all were related to MIS development. Guidelines in the solicitations for grant applications or in requests for proposals must be more structured if the intent of a priority is to be met by projects.

13. The quality of some reports is questionable. A standard reporting format should be developed since most states treat the final report as a compliance document.

14. Not all states were equally successful with their studies. In some states the project provided a learning experience rather than having accomplished the development of a management information system.

TABLE 1

Quantitative Results of the Reports When Compared to Management Information Systems Development Criteria

Criteria	Reports of States																
	Alabama	Arkansas	Colorado	Connecticut	Missouri	New Hampshire	New Mexico	North Carolina	Ohio	Oregon	Puerto Rico	Rhode Island	South Dakota	Tennessee	Texas	West Virginia	Total RMC[b]
I. DEVELOPMENTAL FACTORS		N/A[a]		N/A[a]				N/A[a]	N/A[a]	N/A[a]				N/A[a]			
A. Organizational Need for Information	3		3		3	3	3				2	3	2		3	3	28 .93
B. Prioritizing the Development of Information Systems	2		3		3	2	2				1	2	2		2	2	21 .70
C. Compatability of Intra-Organization Information Systems	2		3		2	1	1				0	3	1		3	1	17 .57
D. Data as the Focus of MIS	3		3		3	3	3				2	2	2		3	2	27 .90
Sub-Total	10		12		11	9	9				6	10	7		11	8	93 .78
Ratio	.83		1.00		.92	.75	.75				.50	.83	.58		.92	.67	
II. TECHNICAL FACTORS																	
A. Data Base in MIS	3		3		3	2	1				1	3	2		2	2	22 .73
B. Data Independence	3		3		2	2	2				1	2	2		3	1	21 .70
C. The Management of Information	2		2		2	1	1				0	1	1		2	0	12 .40
D. Evaluation of MIS	1		3		2	1	1				0	2	1		2	1	14 .47
Sub-Total	9		11		9	6	5				2	8	6		9	4	69 .58
Ratio	.75		.92		.75	.50	.42				.17	.67	.50		.75	.33	
III. HUMAN/ORGANIZATIONAL FACTORS																	
A. Management Support of MIS	2		3		2	2	2				2	2	3		3	2	23 .77
B. Staff Opposition to MIS	1		2		2	1	1				0	1	1		1	1	11 .37
C. User/MIS Development Team	1		2		1	1	0				1	2	1		3	1	13 .43
D. MIS Output/Decision Maker Interaction	1		2		1	0	0				0	1	0		1	0	6 .20
Sub-Total	5		9		6	4	3				3	6	5		8	4	53 .44
Ratio	.42		.75		.50	.33	.25				.25	.50	.42		.67	.33	
TOTAL	24		32		26	19	17				11	24	18		28	16	215 .60
RMC[b]	.67		.89		.72	.53	.47				.31	.67	.50		.78	.44	

[a] N/A = Not Applicable

[b] RMC = Ratio of MIS Compliance

Table 2

Rank Order of Criteria Ratings From High to Low

Criteria (Factors)	Rank Order	RMC[a]
Organizational Need for Information	1	.93
Data as the Focus of MIS	2	.90
Management Support of MIS	3	.77
Data base in MIS	4	.73
Prioritizing the Development of Information Systems	5.5	.70
Data Independence	5.5	.70
Compatability of Intra-Organization Information Systems	7	.57
Evaluation of MIS	8	.47
User/MIS Development Team	9	.43
The Management of Information	10	.40
Staff Opposition to MIS	11	.37
MIS Output/Decision Maker Interaction	12	.20

[a]RMC = Ratio of MIS Compliance

REVIEW PANEL OBSERVATIONS AND RECOMMENDATIONS

The following statements reflect some observations and recommendations on the part of the review panel.

1. The organizational and political structure within certain states may not be conducive to efficient and effective management of vocational education. A complete and functional MIS for planning and decision making may not be totally feasible under these circumstances.

2. Once vocational education is closely evaluated at every level the need for an MIS will be more evident, both to improve it *and* to conduct better evaluations.

3. Top and middle vocational education management personnel in at least some states probably are unaware of the usefulness of MIS for planning and decision making. Therefore, they tend not to make necessary commitments to MIS development.

4. Sparsely populated states may not need *automated* (computer-based) management information systems for effective administration of vocational education.

5. MIS development is imperative in the states before vocational education planning and decision making can improve significantly.

REVIEW OF INDIVIDUAL REPORTS

NUMBER 1 **ALABAMA**

A COMPREHENSIVE SYSTEM FOR THE EVALUATION OF INDIVIDUALIZED MANPOWER TRAINING SITES

Donna M. Seay
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418 South Perry Street
Montgomery, Alabama 36104

Purpose of Project

The basic purpose of this project was to automate the procedures used to evaluate the Learning Resource Center (LRC) of the Individualized Manpower Training System (IMTS). A secondary purpose was to develop an analysis scheme for assessing the benefits and cost effectiveness of the IMTS. More specifically, the study sought answers to the following questions:

1. To what extent can the IMTS procedures for each component be installed in a sufficiently uniform manner to insure comparability among IMTS sites?

2. What installation features are most essential at an IMTS site to optimize the effectiveness of operation?

3. What are the specific benefits of the IMTS to its clients as compared to other educational programs?

4. What is the cost effectiveness of the IMTS as compared to other educational programs?

Results of Study

Although the results of the endeavor do not directly correspond to the questions stated in the purpose, the summary statement does address the major purposes of the study.

1. The computerized data system is indeed a viable instrument for the comprehensive and ongoing evaluation of the IMTS programs.

2. The IMTS procedures permit a high degree of consistency and uniformity in installation.

3. There was a high degree of cooperative compliance with the data collection requirements.

4. A significant degree of data attrition occurred.

5. The compositions of student bodies at all sites were highly similar.

6. Students at the IMTS sites tend to learn more than students at control sites as evidenced by pre-posttest data.

7. The learning modules were used extensively at the IMTS sites.

8. In this assessment of the augmentation components of complementary skills, employability skills, work station experience, and goal setting, the results were somewhat ambiguous. The data were not always available.

9. The staff productivity data from IMTS sites were very positive.

10. The IMTS approach to individualized instruction tends to fill the needs of students who have unique learning problems.

Comparison of Report to MIS Criteria

Out of a possible 36 points, this report received 24 which constitutes a .67 Ratio of MIS Compliance or RMC (see Table I, page 11). Aspects of the information system which were highly rated dealt with data *per se* and the need to *systematize* the evaluation of IMTS sites. The management and evaluation factors and the human/organizational factors received lower ratings. Based on this type of an assessment, the study received an overall positive rating, which indicates that the essential principles of an information system were dealt with directly and/or at least considered.

General Comments

The emphasis across the total effort appears to be upon the student and student-related data which is an excellent perspective. The technical aspects of the study were well documented and executed (e.g., linking data files, potential errors and flow charting procedures) although the minutiae were a bit overwhelming in places. Some confusion was evident between the information system development aspects and the purposes of the evaluation analysis and results. Since several data inconsistencies (e.g., incomplete and inaccurate

data as well as data element definitional concerns) existed throughout the study, the effectiveness of the IMTS tends to be questionable.

The amount of progress accomplished in o year was impressive. If additional resources -- time and money -- were available to continue this effort, no doubt the results would be more convincing since the methodology, procedures, and attention to detail appear to be above reproach.

NUMBER 2 **ARKANSAS**

A MODEL FOR DEVELOPING ALTERNATIVE ADMINISTRATIVE STRATEGIES FOR MAXIMIZING COMPREHENSIVE VOCATIONAL PROGRAM PLANNING AND EVALUATION

Arkansas Department of Education
Division of Vocational, Technical, and Adult Education
Arch Ford Education Building
Little Rock, Arkansas 72201

Purpose of Project

The major purpose of this project was to develop and implement a school-community based model for maximizing the vocational education goals in a local community. Administrative strategies and alternatives were explored which could be used for the coordination of all resources for assessment, planning, and management techniques. The goals of this project were:

1. To develop and implement an in-service education program for administrators and support personnel regarding strategies for program planning and evaluation.

2. To develop and implement a comprehensive data collection system for assessing individual and community needs.

3. To develop and implement a viable school-community occupational training system.

4. To improve the coordination of curriculum and develop a cooperative relationship with business, industry, and community groups.

Results of Study

Only the conclusions of the study are summarized here. The conclusions stated in the report do not precisely correspond to the goals of the study.

1. The state education agency (SEA) demonstrated the ability to provide training for local education agency (LEA) personnel in program planning and evaluation techniques.

2. The LEAs demonstrated the ability to conduct a local needs assessment which met the approval of their advisory council.

3. The local project teams planned vocational programs to meet the priority needs of the communities.

4. Community involvement is one vital aspect of program planning and evaluation which results in a positive response from the community to the planned program.

5. In conducting a project of this magnitude, at least two years are needed in developing and implementing a comprehensive vocational planning and evaluation program.

6. Local school personnel seem to have the capability to develop and implement a program planning and evaluation model if full-time personnel are available to conduct the program.

7. The SEA has limited personnel to manage and execute a project of this nature.

8. From the evaluation evidence, it appears that the comprehensive vocational program planning and evaluation models developed in this project are worthy of dissemination.

Comparison of Report to MIS Criteria

Goal "2" was "to develop and implement a comprehensive data collection system for assessing individual and community needs." This goal was only a small part of the study, therefore, this document was not formally rated by the author in terms of the MIS criteria. In general, however, the so-called "comprehensive data collection system" fell short of qualifying as a data system. Only limited procedures were established for data capture, recording, storage, retrieval, analysis, or output formats. Implicit or explicit procedures for data processing need to be established as a minimum even if the data is not computerized.

General Comments

Based upon the goals stated in the report, the project was an ambitious undertaking. The recommendations made in the report suggest that project staff had a similar perspective. In conducting the study, a variety of procedural and/or methodological approaches could have been improved. Perhaps if more effort had been expended in reviewing the literature to identify what mistakes were made in

earlier efforts of a similar nature, the methods and procedures could have been improved. On a positive note, the stated programmatic outcomes of the project were commendable, especially for an 18-month project period.

NUMBER 3 **COLORADO**

A DESIGN OF AN INTERACTIVE INTERFACE SYSTEM FOR FIVE COMPONENTS OF A COMPREHENSIVE MANAGEMENT INFORMATION SYSTEM IN COLORADO

James L. Harris and Robert W. Scarlata
State Board for Community Colleges and Occupational Education
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Denver, Colorado 80203

Purpose of Project

This project was designed to develop a data interface system which would:

1. Improve the quality of vocational data.
2. Provide vocational data in a more timely manner.
3. Provide meaningful analyses of data (particularly in the worker demand-supply area).
4. Provide the capability of interacting different data bases.

Results of Study

The results as stated below correspond to each of the purposes above, which is indicative of the quality of this report.

1. The quality of the vocational education data base was improved by (a) identifying necessary data elements; (b) designing and implementing data collection systems which emphasize the present capabilities of data suppliers; (c) standardizing codes and definitions, and (d) establishing data control and editing procedures.
2. The timeliness of the vocational data reports was improved by establishing a series of systems for quick preparation and access of data bases.

3. Over 100 data analyses (standard reports) were identified which are now requested by data users on a continuing basis (chief among these is the worker demand-supply report).

4. The ability to interact data bases was developed using standardized codes and a commercial data-based management system which provides both batch and interactive access to most vocational data bases.

Comparison of Report to MIS Criteria

The report was rated on each of 12 MIS factors and received 32 out of a possible 36 points (see Table I, page 11). Both the developmental and technical factors were awarded 12 and 11 points respectively. The human/organizational factors received 9 out of 12 points. The total RMC (Ratio of MIS Compliance) was .89.

General Comments

The study was comprehensive, complex, and well conducted. A great deal of planning apparently went into developing the operational procedures for conducting this study. When problems did occur, the parameters were specified and the limitations clearly documented. It is understandable that the federal management audit pointed to the exemplary nature of this system. (This writer personally examined the Colorado vocational education MIS in Denver during May, 1977).

NUMBER 4 **CONNECTICUT**

A NEEDS ASSESSMENT FOR CAREER PLANNING AND PREPARATION IN CONNECTICUT (VOLUMES I, II, III)

Phillip Masley
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New Britain, Connecticut 06050

Purpose of Project

The overall purpose of this effort was to provide individuals and institutions with information on the relationship between career aspirations and job opportunities in the Hartford Labor Market Area (LMA) and to provide information on selected aspects of training within the LMA and State. *Volume I* of the study was designed to determine the career aspirations of the parents of these students, both for themselves and for their children, and to compare the aspirations with projected manpower demand and training opportunities. The purpose of *Volume II* was to examine the Hartford LMA Employment Security emergency compensation recipients with respect to their (1) characteristics; (2) attitudes toward occupational change and toward new job training; (3) occupational choices, and (4) types of new job training desired. Occupational choices and training desires were also compared with area manpower needs and training opportunities. The specific purpose of *Volume III* was to develop a counselor's handbook which can be used for career guidance services and for improving familiarity with management information systems.

Results of Study

Space does not permit discussion of the extensive findings in these three volumes. Therefore, only summary statements will be presented. In *Volume I*, detailed information is given pertaining to students' career aspirations broken down by sex, grade, study about careers, etc. Comparisons were made between the students' aspirations and the parents' aspirations for the students, and between the parents' current job and their preferred jobs. Additionally, relationships among aspirations, manpower demand, and training were shown. *Volume II* illustrated results as depicted in the "purpose" above. A variety of information was presented pertaining to attitudes, occupational choices, and relationships among several variables of the long-term

unemployed. The report also included information on the effects of selected potential barriers to entry into the labor force. *Volume III* is a guide which may prove useful to career guidance counselors with Chapter VIII probably being the most useful from an operational viewpoint.

Comparison of Report to MIS Criteria

This report, Volumes I-III, did not deal with information systems development. Consequently, it could not be rated against the criteria. Chapter VII in *Volume III* provides some parameters for developing an MIS, but nothing more. In fact, the reason for including a chapter on MIS development in a guidebook for career counselors is not clear.

General Comments

The study definitely has a "scholarly flair;" it is clear, well organized, has a good review of literature, and very extensive conclusions and recommendations. The concept of career aspirations of job seekers certainly adds another dimension to the process of forecasting the number of people entering the labor market. It is questionable whether this dimension has any impact in the people demand-supply forecast model, especially over long periods of time. If a data base of job demand-supply information were established which included the career aspiration dimension, longitudinal studies could potentially illuminate its impact.

The conclusions and recommendations based upon the Hartford LMA could also be useful for other locales and/or states. No provisions were made to disseminate the results of the study.

NUMBER 5 **MISSOURI**

IMPROVING VOCATIONAL EDUCATION PLANNING: MORE MYTH THAN REALITY?

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Purpose of Project

This effort was designed to improve the planning of vocational education in the State of Missouri. With that basic purpose in mind, three distinct steps emerged:

1. Design a planning system.
2. Test the planning system through the development of an operational plan.
3. Implement the system on a permanent basis.

The planning system consisted of five subsystems:

1. Strategic planning and policy determination.
2. Administrative planning.
3. Management information system.
4. Decision making support system.
5. Evaluation system.

These five subsystems were designed to interface with each other and instrumentally comprise the total planning system.

Results of Study

The study addressed each of the five subsystems in terms of explication and/or development and pilot tested the subsystems in a quasi-or real context. The authors concluded the report by stating that improved planning of vocational education can either be a myth or reality dependent upon those who are responsible for leadership and administration. The system described in the report should improve the planning of vocational education. However, the implementation of such a system will require the commitment of state-level administration.

Comparison of Report to MIS Criteria

This report separates the decision making support system from the management information system. A MIS is designed to provide information to management for the sole purpose of decision support. Consequently, the MIS and the decision making support system in the report were construed by this writer as *the* MIS. It was rated accordingly against the criteria.

In terms of developmental factors (see Table I, page 11), the MIS effort in the report received 11 of 12 points resulting in a .92 ratio of MIS compliance (RMC). Technical aspects of MIS development were stressed in the report, but not to the same degree as developmental factors and a RMC of .75 was the outcome. The human/organizational factors received a RMC of .50 suggesting that these factors were not emphasized to a large degree. The MIS was developed for the study and not for a specific context. Therefore, human/organizational factors were evidently not deemed as important.

General Comments

This report rates as one of the best in its examination of vocational education planning. It should serve as an excellent reference for state as well as local vocational education administrators in attempting to improve the planning function.

One weakness, if it can be called that, is the strong criticism of planning in vocational education. The authors imply that since good planning is nowhere to be found in vocational education, the system as designed in the report will answer all planning concerns. At the same time, the report appears to have made a significant contribution to the state of the art in vocational education planning.

NUMBER 6 **NEW HAMPSHIRE**

DEVELOPMENT OF A MANAGEMENT AND INFORMATION SYSTEM FOR THE DIVISION OF VOCATIONAL-TECHNICAL EDUCATION, NEW HAMPSHIRE STATE DEPARTMENT OF EDUCATION (VOLUMES I, II, III)

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Purpose of Project

The project had three primary goals:

1. Establish a reliable, accessible data base required for the development and implementation of a comprehensive management information system.

2. Develop and test a statewide system for the evaluation of vocational education programs with plans for implementing the system in 1976-77.

3. Establish an Occupational Information Resource Center which will provide current information to persons and groups in the State requesting and needing assistance.

Results of Study

In essence, the goals of the project were achieved. Pertaining to goal "1" above, (a) data collection instruments were developed; (b) data was collected, recorded, and stored; (c) computer programs were developed and output reports generated; (d) additional data were needed and put into the data base, and (e) the data base needs were enhanced to include information on finance, property, and administration.

Under goal "2" above, a data-based evaluation model (Program Assessment Model or PAM) was developed to provide continuous feedback for local school program improvement. The report included the procedures used to design PAM and the resulting products.

A document resource center was established in New Hampshire (goal "3"). The Occupational Information Center collects and disseminates information pertaining to careers, jobs, and various other human resource development data.

Comparison of Report to MIS Criteria

Only *Volume I* of the report was rated against the 12 MIS criteria. Although the goal was to establish a data base for the development of a MIS, a management information system was in effect developed. Of the possible 36 points available, the New Hampshire MIS endeavor received 19 for a .53 ratio of MIS compliance. The report did not contain enough evidence to indicate that several factors, primarily technical and human/organizational, were considered and/or dealt with. Very little evidence was contained in the report to suggest that the human/organizational factors were even considered. The MIS may function just as well without the inclusion of all 12 factors, but it is not as likely.

General Comments

The report appears to be well organized and clearly stated. It is interesting to note that the project resulted in practical outcomes which appear to serve useful functions in New Hampshire. The management information system, although in use, is only a partial MIS with more resources required to arrive at a totally functional MIS. The evaluation system needs to be looked at again in terms of data collection reliability and validity, duplication of data, and increasing the effort to acquire categorical (objective) data versus perceptual data. The occupational resource center appears to be operating and providing a needed service.

As is apparent from the report, the State of New Hampshire has made significant gains in evaluation for improvement of vocational programs, MIS development and dissemination of occupational information.

NUMBER 7 NEW MEXICO

VOCATIONAL-TECHNICAL INFORMATION SYSTEM

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Purpose of Project

The basic goal of the project was to establish a Vocational-Technical Information System (VTIS). The system should provide information for data reporting requirements, planning and evaluation, and for policy development governing vocational education.

Results of Study

The Vocational-Technical Information System was developed. It included student biographical, enrollment, placement, and follow-up data. Numerous forms, procedures, output formats, and computer applications were developed in order to establish a functional information system.

Comparison of Report to MIS Criteria

The Vocational-Technical Information System in New Mexico was developed with a data base consisting only of student data. This student information system was rated against the 12 MIS criteria as listed in Table I. Since each criterion has a possible 3 points, 36 points could be awarded. The VTIS received 17 points for a .47 ratio of MIS compliance. Very little evidence was contained in the report to suggest that the essential principles of information systems development were considered, especially regarding technical and human/organizational factors. These factors received RMC ratings of .42 and .25 respectively.

General Comments

The report did not specify in a very organized manner the goals and objectives of the study. This confusion is reflected in the difference between the purpose and results of the study. The authors' concept of the nature of an information system is questionable. For example, it is doubtful that the VTIS, as designed, could provide decision support pertaining to planning and policy development. The data base and corresponding data analysis schemes would both require enhancement if VTIS outputs could have any bearing upon planning and policy making. New Mexico has a good basis in the VTIS to initiate the development of a total management information system.

NUMBER 8 **NORTH CAROLINA**

DATA AVAILABILITY IN VOCATIONAL EDUCATION (VOLUMES I, II, III, IV)

Center for Occupational Education
North Carolina State University
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Raleigh, North Carolina 27607

Purpose of Project

The overall purpose of the project was to document the degree to which data that is currently collected by state vocational education agencies could be used to answer prioritized questions of data needs (as identified in an earlier study). To fulfill the overall purpose, the following goals were identified:

1. Gather and catalogue all state vocational education agency data collection forms.

2. Examine each data element and classify it in relation to data need question(s).

3. Analyze the correspondence of data available to data needs.

4. Conduct field visits to gather information on alternative approaches to addressing the high priority data needs.

Results of Study

In *Volume I*, the information needs were examined in relation to the data currently available at the state level as evidenced by state agency data collection forms. *Volume II* contains each data need question and the corresponding data available. These relationships are indexed according to relative need and current availability of the combined ratings of federal, state, and local data-user groups. The state agency data collection forms that were coded and analyzed are listed in *Volume III*. Since the collection forms are cross-indexed, forms can be located by major subject area and according to content. *Volume IV* presents the results of field visits to 10 states and focuses upon the procedures those states would use to answer the 50 highest priority data need questions. Alternative approaches to

answering each question are presented and problems relating to data aggregation, format, and data element definitions are discussed.

Comparison of Report to MIS Criteria

Since this report did not concern itself specifically with information systems development, it was not rated in terms of the 12 MIS criteria.

General Comments

The Center for Occupational Education, North Carolina State University, is commended for undertaking such an extensive national study of the relationship between vocational education data needs and availability. The report is well organized, easy to read, and appears methodologically and procedurally sound. The four volumes, particularly the last three, should prove beneficial to state personnel who are concerned with collecting vocational educational data. It was also enlightening that this study addressed, or at least discussed, the problem of vocational education data aggregation at the national level. Until the standardization of data element definition and collection occurs within states, data aggregated at the federal level are meaningless. As stated in the report, a major development effort is required if a national vocational education data and accounting system (VEDS) is produced as mandated in the 1976 Educational Amendments (P.L. 94-482).

NUMBER 9 **OHIO**

A FIELD TRIAL OF THE MANAGEMENT INFORMATION SYSTEM FOR VOCATIONAL EDUCATION (MISVE)

The National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

Purpose of Project

The objectives of field testing the Management Information System for Vocational Education (MISVE) were:

1. Assess the comprehensiveness, usefulness, and efficiency of the input subsystem's information flow procedures and data collection instruments.

2. Assess the efficiency and usefulness of the processing subsystem to support the information subsystem.

3. Assess the usefulness of the output subsystem for management and reporting purposes.

4. Prepare system documentation and assess it for completeness and comprehensiveness.

5. Produce specifications for modifications in the MISVE product package.

Results of Study

The field trial reinforced the basic design and operation of MISVE as originally developed. Some rather minor technical errors were identified. The operating system's documentation received criticism and measures were taken to correct the problems. One major concern with the MISVE as identified in the field trial was the lack of a detailed installation and operations manual. In general, the results of the field trial were positive and the objectives were met.

Comparison of Report to MIS Criteria

This report did not include the development of an information system, therefore, it was not compared to the criteria. (This writer has examined the MISVE and has found it to be an excellent MIS prototype.)

General Comments

The report was logical and well organized as were the procedures and methodology for field testing. States embarking on an MIS development effort would probably benefit greatly from the Ohio-developed MISVE. The MISVE appears to be explicitly structured and consequently, it is easily conceptualized.

More problems could, at least potentially, have developed if the field test had been conducted in another state besides Colorado. In terms of an operating MIS, Colorado, to date, has one of the most developed vocational education MISs in the country. It may be expecting too much for any state to adopt a functional MIS that has been developed by another state or agency even if it is an excellent prototype such as the Ohio MISVE.

NUMBER 10 **OREGON**

MODELS FOR THE USE OF A DATABASE IN PLANNING STATE AND LOCAL VOCATIONAL PROGRAMS (FIVE DOCUMENTS)

Oregon Department of Education
Career and Vocational Education Section
942 Lancaster Drive, Northeast
Salem, Oregon 97310

Purpose of Project

The two primary goals of this project were:

1. Develop models to show the use of data specified in the proposal to implement decision making at key points in vocational program planning and curriculum development, and identify major application of such data in program evaluation and in vocational guidance.

2. Design, develop, and test systems to improve the competencies of state and local personnel in the use of the "data-use models" for improving decision making in program planning, curriculum development, and vocational guidance.

Results of Study

The project effort produced four documents (excluding the final report) which were developed for use as guidelines in vocational education curriculum and program planning. Three types of agencies were involved in the project (state, local school, and community college) and each agency developed its own respective models for use in program planning and curriculum development. The state agency for vocational education developed only one model for vocational planning. The community college developed two models: one for program planning and the other for curriculum development pertaining to vocational programs. The local education agency also developed two planning models (i.e., for programs and curriculum).

Comparison of Report to MIS Criteria

This project was not concerned with information systems development; therefore, no comparisons were made.

General Comments

The final report refers to inter-agency problems in attempting to address a common problem of curriculum and program planning. It is interesting to note that each of the three agencies developed its own model for planning. This may suggest that models and their corresponding guidelines cannot be developed external to the particular agency of concern. Although the models appear simplistic, they apparently are producing results. This has not always been true of "university-developed" planning models.

All five documents could have been combined into one. There was too much redundancy, yet one had to read all five documents for a clear understanding of project activities. Although one could question several of the operational components of the models, the documents could easily be used at the local level. The guidelines are clear and explicit.

NUMBER 11 **PUERTO RICO**

MANAGEMENT INFORMATION SYSTEM, PHASE II

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Research Coordinating Unit
Vocational, Technical, and High Skills Education Programs
Department of Education
Hato Rey, Puerto Rico

Purpose of Project

Only the purpose/objectives of "Phase II" will be reported here although operationally, Phase I and II do not appear to be separate. Phase II of the MIS development was to develop further the comprehensive system by evaluating and revising Phase I activities and to develop forms and collect data on teachers and program facilities. The following objectives were identified:

1. Revise the programming and procedures of the student data file, which includes student follow-up.

2. Continue the development of a systematic approach to the collection of reliable data on occupational demand.

3. Supply the Vocational and Technical Education Program (VTE) with relevant data on teachers.

4. Supply the VTE Program with available and necessary data on program facilities.

5. Produce the required output data needed for the State Plan and Annual Reports of Vocational and Technical Education and for the formative and summative evaluation of programs.

Results of Study

The results of the study as reported do not correspond with the objectives. The following summary statements were compiled to reflect the results:

1. Student data collection forms were revised and data collected, recorded and stored.

2. Occupational demand data were collected, processed, and retrieved for reporting in the State Plan and also disseminated to local school directors.

3. Teacher data were made available for reports.

4. Facilities data were made available for reports and evaluation purposes.

Comparison of Report to MIS Criteria

Based upon the information contained in the report, the MIS development process in Puerto Rico did not fare very well when compared to the criteria established. Overall, the ratio of MIS compliance (RMC) was .31 (11 out of 36 points). The developmental factors received the highest rating, with an RMC of .50 which probably reflects the "Phase I" effort. The report shows that technical expertise was lacking in Puerto Rico's MIS development (technical factors: RMC = .17). The human/organizational factors did not receive any significant consideration by the MIS development staff, although it can be inferred that top management supported the effort (RMC = .25).

General Comments

This report (Phase II) was, in essence, a continuation of Phase I and apparently the system was not well organized before Phase II began. The types of concerns cited in the report suggest a void in the organization and management of effort relating to coordination, responsibility, and task accomplishment. Some of these concerns may have been unavoidable because of interagency problems. Also, it appears that there is a lack of technical expertise available, particularly in the areas of systems analysts and computer programs. In summary, the study was probably an excellent learning experience for everyone involved. The seed for MIS development has been planted.

NUMBER 12 **RHODE ISLAND**

AN INFORMATION NETWORK AND SIMULATION MODEL FOR VOCATIONAL EDUCATION

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Providence, Rhode Island 02903

Purpose of Project

The major purpose of this project was to explore less costly methods (other than establishing a full-time MIS function) by which educational planning and control information could be collected, organized, and disseminated to appropriate planners and policy makers. More specifically, the three goals were:

1. To establish a common demographic, manpower, economic, and educational data base for dissemination and use by educational planners and policy makers at various levels in different state and local agencies.

2. To develop a process and mechanism for improving communications and coordinating the efforts of state agencies involved in meeting the occupational and training needs of the people of the state of Rhode Island.

3. To create an analytic and planning tool to assist the Department of Education in analyzing the impact of different demographic and economic contingencies on the educational system and to assess the consequences of alternative educational policies.

Results of Study

Essentially, the three goals were accomplished as stated with the exception of the assessment of the consequences of alternative educational policies (last part of goal "3"). An educational information system task force was organized from members of various state agencies. The task force served to (a) identify missing or duplicated educational data elements and develop a means by which these data could be systematically collected and disseminated on a continuous basis; (b) develop administrative procedures for establishing an information

exchange network, and (c) bring together collective judgments and experience to bear on the usefulness of the simulation model as an analytic and planning tool. The existing Rhode Island Model was further developed by (a) incorporating into it additional data categories; (b) modifying it as required to accommodate the additional variables and parameters, and (c) experimenting with various computer simulation runs to test the feasibility of the model for planning and policy making purposes.

Comparison of Report to MIS Criteria

The authors originally stated that the intent of the project was to explore less expensive methods by which information could be collected, organized, and disseminated. Apparently, they perceived their development as involving something other than a management information system. In essence, however, the project resulted in an MIS which is rated here.

Overall, the study received 26 of 36 points for a ratio of MIS compliance of .67. This indicates that most of the factors were considered. The developmental factors received the most emphasis as reflected in a .83 RMC, the technical factors received 8 of 12 points, while the human/organizational factors received 6 points for a .50 RMC.

General Comments

The report was well organized, easy to read and understand, and sufficient supporting material was documented to aid in conceptualizing the total effort. The methods and procedures used suggest a sound approach.

Plans were formed to continue analyzing and evaluating the "Model II," but no formal plans were identified to implement the system as a functional aspect of occupational education. The study demonstrated that MIS operation does not have to be expensive but the costs certainly are greater than cited in the report ($8400). The annual costs of data collection and storage, maintenance of the system, indirect costs, etc. were not included.

The model is a relatively sophisticated planning tool since several variables relevant to planning can be simulated and forecasts made. Hopefully, the model will be developed further and eventually implemented as a routine function on the state level. The model or MIS could be used to improve human resource development and planning in Rhode Island.

NUMBER 13 **SOUTH DAKOTA**

FOLLOW THROUGH—MANAGEMENT INFORMATION SYSTEM

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Purpose of Project

The purposes of the project were to (a) provide a uniform statewide procedure for assessing the training given vocational students once they enter the labor force; (b) collect feedback information to be used in making administrative decisions, and (c) implement a statewide placement system to assist graduating post-secondary vocational-technical students in their job search. The system was designed to be initiated and conducted primarily from the state level with the exit data gathered at the local level and the placement information to be collected through a cooperative agreement between the South Dakota Division of Vocational Education and South Dakota Job Service (Department of Labor).

Results of Study

The system consisted of data collection forms, a procedure to administer them, and a computer program to summarize the data for state and local use. The assessment procedure produced valid and reliable information at the post-secondary level. The information also contained current names and addresses. The statewide placement system provided an opportunity for all graduating post-secondary students seeking employment to register their employment preferences (e.g., type of position, geographic location) and this information was used by the employment bureau for job development.

Comparison of Report to MIS Criteria

Although the report did not make the study procedures very explicit (e.g., What did the advisory committee do? How often did they meet?

etc.), sufficient information was presented to at least infer the information system development process. The absence of information made the rating of the report more difficult.

The study received 18 of a possible 36 points which is a .50 ratio of MIS compliance (RMC). The three categories of developmental, technical, and human/organizational factors received RMC ratings of .58, .50, and .42 respectively.

General Comments

The report was clearly written and was therefore easy to follow and understand. Generally, the procedures used to conduct the study were sound--no problems were apparent.

Since the project was limited in the explication and scope of procedures, it was difficult to assess to what degree this follow-up system would interface on a conceptual and operational basis with other organized intra-state information systems pertinent to vocational education. The statement was made that valid and reliable information was generated from the assessment procedure, although no formal process was utilized to determine reliability or validity.

A major hurdle in developing an MIS for vocational education is acquiring the support of agencies external to vocational education. The MIS development staff in South Dakota established an interagency agreement between the Division of Vocational Education and the Department of Labor. This fact alone could be the basis for the development of an effective MIS for vocational education. The appropriate conceptual and political environment and even some technical steps have been taken for MIS development in South Dakota.

NUMBER 14 **TENNESSEE**

IMPLEMENTATION OF A STATE-WIDE COMPUTER-BASED OCCUPATIONAL INFORMATION SYSTEM WITH MULTIFACET DELIVERY SYSTEMS

Walter A. Cameron
University of Tennessee
College of Education
Knoxville, Tennessee 37916

Purpose of Project

The major purpose of this project was to adopt and implement alternative delivery approaches for providing occupational information to students in Tennessee. The specific objectives of the project were:

1. Computerize previously developed occupational information for on-line delivery capabilities as well as for development of computer output microfiche.

2. Develop manual pinsorts to aid junior high, secondary, and post-secondary students in exploring occupational information.

3. Develop special materials for blind students and slow learners.

4. Develop user guides on use of the various delivery systems.

5. Evaluate reactions of students, teachers, counselors, and parents to the different occupational delivery systems.

6. Provide cost data on different systems.

Results of Study

An updated version of Tennessee's occupational information was computerized to provide on-line access. The computerized package was developed by the University of Oregon with the direct copy microfiche output being processed from the original printed data base and not the computerized package. The manual pinsorts were developed and used by junior high, secondary, and post-secondary

students as career exploration information. Additionally, Braille, audio tape, and audio-visual materials were developed for use by special needs learners. User guides were developed along with in-service training provided to users on how to use the materials most effectively.

Comparison of Report to MIS Criteria

This report did not deal with information system development. Consequently, it was not rated against the management information system criteria.

General Comments

The objectives of the study were clear and were executed in a straightforward manner. Objective six, which provides cost data on the different occupational information delivery modes, is the only one which may not have been accomplished. Costs listed in the report are misleading since they did not include, for example, development cost, system implementation cost, or system maintenance costs. Although the report stated that only operating costs could be accurately assessed and, therefore, reported, the other types of costs mentioned should have been estimated and included in the figures reported. Another apparent shortcoming is in the area of insufficient rationale and/or evidence for some statements and procedures (e.g., How were students randomly sampled within schools? Why, specifically, could the University of Oregon's career information computerized package not be used?).

Overall, the project was more than satisfactorily conducted and represents a service that may benefit many young people and adults in Tennessee.

NUMBER 15 **TEXAS**

RECOMMENDED REQUIREMENTS FOR A COMPREHENSIVE MANAGEMENT INFORMATION SYSTEM FOR OCCUPATIONAL EDUCATION

Cedar Parr
Occupational Education and Technology
Texas Education Agency
201 East Eleventh Street
Austin, Texas 78701

Purpose of Project

The project was designed to identify information needs of those persons who make management decisions about public school vocational education programs in Texas and develop ways to meet these needs through use of a management information system. More specifically, the objectives were:

1. To identify the basic issues involved in program management decisions in occupational education at the secondary level.

2. To identify the data elements which would be required in a data base to support these program management decisions.

3. To develop a time-referenced "plan of attack" for improving data collection, processing, and dissemination procedures, including a list of recommended priorities for action and step-by-step procedures for implementing those recommendations.

4. To identify the kinds of computer programs, computer routines, and models which may be needed to support the program management decisions.

5. To identify computer outputs needed to serve the program management decisions.

6. To describe the most efficient flow of information from the local to the state level and out again, including all points where computerized data processing is required.

Results of Study

The results of the study provided (a) a detailed listing of the basic issues involved in program decision making relating to vocational education; (b) a tentative listing of needed data elements to be considered in a management information system, and (c) recommendations for the implementation of a management information system. The nine recommendations were divided into two groups with the first seven being in the "immediate action" group and the last two in the "long range action" group.

Comparison of Report to MIS Criteria

The Texas MIS development effort was compared to the 12 criteria and 28 points out of 36 were awarded (see Table I). Overall, the ratio of MIS compliance (RMC) was .78. Sufficient evidence was presented in the report to determine that most of the criteria for MIS development were dealt with directly or at least considered. In terms of the developmental and technical factors, 11 (RMC = .92) and 9 (RMC = .75) points were awarded respectively. The human/organizational factors received a RMC of .67 or 8 out of a possible 12 points.

General Comments

This report presented the results of the study in a manner that held the reader's interest. The amount of planning and coordination in conducting the study was very impressive. The number and type of individuals who were on the Action Committee and the Task Force clearly suggest that MIS development was a high priority.

In the review of MISs in other states, it would have been helpful to include a list of problems encountered. It may not have altered the approach to MIS development, but it would have indicated to the reader that the Texas staff was cognizant of problems in other states.

The approach in this development effort should be applauded--other states may find the procedures helpful in their own respective MIS development. The objectives of the study were achieved.

NUMBER 16 **WEST VIRGINIA**

DESIGN AND DEVELOPMENT OF FISCAL AND STUDENT FOLLOW-UP COMPONENTS OF THE WEST VIRGINIA COMPREHENSIVE DATA SYSTEM FOR VOCATIONAL EDUCATION

Clarence E. Burdette
Bureau of Vocational, Technical, and Adult Education
West Virginia Department of Education
Charleston, West Virginia

Purpose of Project

The project had five objectives as follows:

1. To establish a data base for determining annual operating costs for approved vocational curricula.

2. To establish a data base for evaluating selected aspects of vocational education program effectiveness through follow-up surveys of program graduates, completers, and dropouts.

3. To involve both state and local level personnel in the cooperative planning and development of financial and follow-up components of the state vocational education management system.

4. To provide information which will assist state and local administrators in the planning, budgeting, operation, and evaluation of vocational education programs.

5. To develop vocational education financial and follow-up procedures which will meet program management needs in West Virginia and which may be adapted by other states.

Results of Study

The study was designed to add two data components, program finance and student follow-up, to the existant, automated vocational education data base. The West Virginia Comprehensive Data System for Vocational Education had three components in the data base prior to the study. The study added only the student follow-up component. The finance component could not be field tested and it was not added

to the data base. Therefore, objective "1" and parts of objectives "3", "4", and "5" were not accomplished. The report states only that objectives "1" and "3" were not achieved, which may represent a mistake in reporting.

Comparison of Report to MIS Criteria

The development effort to add the fiscal and student follow-up component to the existing information system was compared to the MIS criteria. Overall, 16 points were awarded for an RMC of .44. Both the human/organizational and technical factor categories received 4 points each which translates into a .33 RMC. The developmental factors received 8 points (RMC = .67).

General Comments

The report was well organized and clear, but the objectives appeared to be overly ambitious, given the time frame.

As was pointed out in the "Results of Study," only about one-half of the planned scope of work was accomplished. Apparently, very limited explicit conceptualization transpired prior to the commencement of the study. A void existed in determining what steps to follow in executing the study--a detailed documentation of the approach and/or procedures may have expedited the study. Several reporting inconsistencies were also present in the study. For example, this study did not include dropouts, yet dropouts were mentioned in objective "2". On the other hand, it was not necessary to include results of the student follow-up in the report. The student follow-up information should only be viewed in terms of reliability and validity.

With additional resources *and* time, the fiscal data component will be added to the data base. This study provided the opportunity to "experiment" and was probably a valuable learning experience.

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Appendix A

MIS FINAL REPORTS
(by State)

MIS FINAL REPORTS
(by State)

Alabama	Seay, D. M. *A Comprehensive System for the Evaluation of Individualized Manpower Training Sites.* Montgomery, Alabama: Technical Education Research Centers, 1976.
Arkansas	Arkansas Department of Education. *A Model for Developing Alternative Administrative Strategies for Maximizing Comprehensive Vocational Program Planning and Evaluation.* Little Rock, Arkansas: Division of Vocational, Technical, and Adult Education, Arkansas Department of Education, 1976.
Colorado	Harris, J. L. and Scarlata, R. W. *A Design of an Interactive Interface System for Five Components of a Comprehensive Management Information System in Colorado.* Denver, Colorado: State Board for Community Colleges and Occupational Education, 1977.
Connecticut	Masley, P. *A Needs Assessment for Career Planning and Preparation in Connecticut* (3 Volumes). New Britain, Connecticut: Central Connecticut State College, 1977.
Missouri	Atteberry, J. W.; Miller, W. R.; and Pershing, J. A. *Improving Vocational Education Planning: More Myth Than Reality?* Columbia, Missouri: Department of Practical Arts and Vocational-Technical Education, University of Missouri, 1977.
New Hampshire	Murphy, L. C. *Development of a Management and Information System for the Division of Vocational-Technical Education, New Hampshire State Department of Education* (3 Volumes). Concord, New Hampshire: Division of Vocational-Technical Education, New Hampshire State Department of Education, 1977.
New Mexico	Labodda, R. A. and Snyder, T. *Vocational-Technical Information System.* Santa Fe, New Mexico: Vocational Education Unit, State Department of Education, 1977.
North Carolina	Center for Occupational Education, North Carolina State University. *Data Availability in Vocational Education* (4 Volumes). Raleigh, North Carolina: Center for Occupational Education, North Carolina State University, 1976.
Ohio	The Center for Vocational Education, Ohio State University. *A Field Trial of the Management Information System for Vocational Education.* Columbus, Ohio: The Center for Vocational Education, Ohio State University, 1977.

Oregon	Oregon Department of Education. *Models for the Use of a Data Base in Planning State and Local Vocational Programs.* Salem, Oregon: Career and Vocational Education Section, Oregon Department of Education, 1977.
Puerto Rico	Acevedo, I. P. *Management Information System, Phase II.* Hato Rey, Puerto Rico: Research Coordinating Unit, Vocational, Technical, and High Skills Education Programs, Department of Education, 1976.
Rhode Island	Beaulieu, R. A. and Erickson, S. A. *An Information Network and Simulation Model for Vocational Education.* Providence, Rhode Island: Rhode Island Department of Education, 1977.
South Dakota	Stover, K. M. *Follow Through—Management Information System.* Springfield, South Dakota: University of South Dakota, 1976.
Tennessee	Cameron, W. A. *Implementation of a State-Wide Computer-Based Occupational Information System with Multifacet Delivery Systems.* Knoxville, Tennessee: College of Education, University of Tennessee, 1976.
Texas	Parr, C. *Recommended Requirements for a Comprehensive Management Information System for Occupational Education.* Austin, Texas: Occupational Education and Technology, Texas Education Agency, 1976.
West Virginia	Burdette, C. E. *Design and Development of Fiscal and Student Follow-up Components of the West Virginia Comprehensive Data System for Vocational Education.* Charleston, West Virginia: Bureau of Vocational, Technical, and Adult Education, West Virginia Department of Education, 1976.

APPENDIX B

Project Abstracts from MIS Projects Not Included in the Review and Synthesis

The following abstracts are provided for projects not included in the review and synthesis. Every effort was made on the part of the project monitor and the staff of the National Center for Research in Vocational Education to locate project final reports. However, if reports were not available, either directly through the states, or the project monitor, or through the ERIC Clearinghouse on Career Education, they could not be included. September 30, 1977 was set as the final deadline for acquisition of the reports. At that time, 16 of 23 were available and it was felt these 16 represented a satisfactory percentage of the whole. Because of the enormity of the task of analyzing 16 extensive reports, it was considered a courtesy to the author to establish the September 30, 1977 deadline.

PROJECT ABSTRACT

PROJECT NUMBER: 498AH50127

TITLE: Alabama Vocational Management Information System

PROJECT DIRECTOR AND ORGANIZATION: Dr. Stanley D. Patterson
Supervisor of Research and Evaluation
Division of Vocational Education
and Community Colleges
Alabama Department of Education
868 State Office Building
Montgomery, Alabama 36130 (205) 832-3476

GRANT PERIOD: July 1, 1975 - December 31, 1976

OBJECTIVES OR PURPOSES

To design and implement a management information system (MIS) that will provide to decision makers accurate, usable and timely data and information concerning input, output, and impact of vocational education. Objectives are:

1. Design an MIS embracing student accounting, fiscal accounting, manpower analysis, and program evaluation.

2. Develop automated data collection and processing for: post-secondary enrollments, adult follow-up, Industrial Development Training, secondary program evaluation, and supply-demand interface.

3. Field test automated data processing of the following components: enrollment reports, secondary and post-secondary enrollment updating, annual teacher reports, technical college follow-up report.

PROCEDURE OR APPROACH

The general approach will be to evaluate and consolidate existing components of data systems and to design and develop additional components to contribute to a comprehensive management information system. In-service training will be conducted to insure that all sub-systems are compatible and subject to being integrated. A detailed overall plan for a comprehensive system will be developed concurrent with the development and field testing of various sub-systems.

EXPECTED CONTRIBUTION TO EDUCATION

The implementation of the total vocational education management information system will result in a larger proportion of the clientele in the State being served more effectively and efficiently with the limited resources available for vocational education. Data will be available on the needs of individuals, society, and industry. Impact information will show cost recovery ratios, placement effectiveness, societal returns, values to industry, and product evaluation.

PROJECT ABSTRACT

PROJECT NUMBER: 498AH50217

TITLE: Continued Development and Implementation of the Multifarious, Student-Based, Management Information System

PROJECT DIRECTOR AND ORGANIZATION:
Dr. Ronald D. McCage
Coordinator, Research and Development Unit
Division of Vocational and Technical Education
Illinois Board of Vocational Education
1035 Outer Park Drive
Springfield, Illinois 62706 (217) 782-6420

GRANT PERIOD: July 1, 1975 - December 31, 1976

OBJECTIVES OR PURPOSES

1. To further refine and integrate the previously developed subsystem components (student supply, manpower demand, supply/demand interface, and follow-up) into the Multifarious, Student-Based, Management Information System (MIS).

2. To develop linkages between the MIS and the components of the program cost, student placement, three-phase evaluation, and an occupational education coordination council (OECC).

3. To expand the MIS from its current four-county area to the ten-county analytic region and explore new approaches to better utilizing available data.

4. To revise and expand, where necessary, reporting procedures and output formats of the MIS.

PROCEDURE OR APPROACH

The student supply, manpower demand, supply/demand interface, and follow-up components have been developed and initially field-tested within a four-county area. The cost and evaluation components are partially developed, but linkages with the overall MIS are incomplete. The teacher supply/demand, placement, and OECC components are in the design phase. Linkages among the components, such as typing follow-up to the supply/demand comparisons, will be given particular emphasis. Development of the teacher supply/demand component and the feasibility of a placement component will be completed.

EXPECTED CONTRIBUTION TO EDUCATION

The information generated by the MIS will have a significant impact at the state and local level in all areas of vocational education, including planning, budgeting, decision-making, reporting, and evaluation.

PROJECT ABSTRACT

PROJECT NUMBER: 498AH50022

TITLE: Development of an Alternative Statewide Management System for Vocational Education Using Regional Planning for System Design, Implementation, and Field Testing

PROJECT DIRECTOR AND ORGANIZATION:
Mr. Don K. Gentry
Executive Office/State Director
Indiana State Board of Vocational and Technical Education
120 West Market Street, 16th Floor
Indianapolis, Indiana 46204 (317) 633-4841

GRANT PERIOD: July 1, 1975 - December 31, 1976

OBJECTIVES OR PURPOSES

1. Identify three regional planning groups responsible for developing a regional plan that interface with a state management information system by July 15, 1975.
2. A State Task Force will develop a management information system for administration and planning of vocational education by November 23, 1976.
3. Analyze the impact regional plans have on the existing data system and existing State Laws by December 15, 1976.
4. Provide a summarization of State Administrative System and State Law changes needed to implement the management information system developed by December 15, 1976.

PROCEDURE OR APPROACH

The State Board of Vocational and Technical Education will award contracts to three regional vocational groups to develop regional plans for vocational education that will interface with a State Management information system using information from the three regional planning groups.

EXPECTED CONTRIBUTION TO EDUCATION

Outcomes anticipated would be a regional planning model or models for Indiana, and a State Management Information System that is efficient. Fragmentation among State Agencies bringing about competition, duplication, and dissipation of resources would be avoided. More efficient use of present resources for vocational education will occur as well as development of plans for increasing resources in the future.

PROJECT ABSTRACT

PROJECT NUMBER: 498AH50013

TITLE: Management Information System for Occupational Education (MISOE)

PROJECT DIRECTOR AND ORGANIZATION: Dr. William G. Conroy, Jr.
Division of Occupational Education
Massachusetts Department of Education
182 Tremont Street
Boston, Massachusetts 02111 (617) 454-0494

GRANT PERIOD: July 1, 1975 - December 31, 1975

OBJECTIVES OR PURPOSES

1. To implement parts of an occupational education census data system which provides a description of the skills by occupation with which students exit programs and the cost of occupational education programs, by school.

2. To mount data from a Retrospective Impact Study which estimates the differential impact of occupational and academic education on society and students on an interactive computer system and to analyze this data.

PROCEDURE OR APPROACH

1. Those parts of the census data system which are appropriate for implementation will be put into place during the 1975-76 school year, including terminal performance objectives (TERMOBs) for about 80% of the enrollment in secondary education in Massachusetts. (For a description of TERMOBs see the *American Vocational Journal* of May 1975, "TERMOBs: Performance Objectives With A Bigger Bite," p. 42, and for a description of the MISOE census data system, see the *Journal of Research and Development in Education*, Winter, 1974, University of Georgia, Athens, Georgia. This census data system is now transportable to other states).

2. The Retrospective Impact Study is designed to study the relationship between various secondary program mixes in Massachusetts, including specific occupational education programs, and subsequent career and lifestyle development patterns for students who did or should have graduated in 1969 and 1973. This study includes

controls for learning ability and SES and certain school characteristics, so that the independent effect of either program or student and school characteristics upon career or lifestyle development can be estimated.

EXPECTED CONTRIBUTION TO EDUCATION

Each of these activities will provide Massachusetts with an improved basis for planning and managing occupational education and should provide an opportunity for others to capitalize upon this experience.

PROJECT ABSTRACT

PROJECT NUMBER: 498AH50084

TITLE: Development of a State Agency Vocational Education Planning and Decision-Making System

PROJECT DIRECTOR AND ORGANIZATION:
Mr. Wilford R. Glasscock
Acting Project Director
Research Supervisor
Finance, Planning and Evaluation Component
Office of the Superintendent of Public Instruction
Helena, Montana 59601 (406) 449-3693

GRANT PERIOD: July 1, 1975 - December 31, 1976

OBJECTIVES OR PURPOSES

Develop and implement a comprehensive planning and decision-making system for the administration of vocational education in Montana. Namely, these are:

1. To develop a student characteristics subsystem that contains student input data as it relates to enrollment/exit in proprietary, adult and nonpublic schools and public secondary and post-secondary vocational schools, (data at such levels are now available). Follow-up data will be extended to include more details on post-secondary students.

2. To develop an evaluation system that will provide data necessary for post-secondary evaluation and accreditation and the evaluation of curriculum and instruction.

PROCEDURE OR APPROACH

Communication lines between federal, state and local agencies concerned with vocational education/job market data will be developed. Voc ed decision-makers then will be contacted to determine what data beyond that now supplied, are needed--when and in what priority. Once data and time requirements are known, the source of the data will be made known. New or revised collection instruments will be developed and tested; the data will be converted to meaningful reports on a pilot basis. Evaluation feedback will be used to improve planning and development processes. A procedural manual will be written and maintained for administrative use.

EXPECTED CONTRIBUTION TO EDUCATION

The effort will result in the development and implementation of a comprehensive evaluation subsystem and the expansion, development and implementation of a student characteristics subsystem to provide for the correlation of information on the accuracy of program offerings (curriculum and instruction) as related to post-graduate vocational student behaviors.

PROJECT ABSTRACT

PROJECT NUMBER: 498AH50077

TITLE: Nebraska Vocational Information System

PROJECT DIRECTOR AND ORGANIZATION:
Mr. Elton B. Mendenhall
Director, Research Coordinating Unit for Vocational Education
University of Nebraska
Box 33, Henzlik Hall
Lincoln, Nebraska 68508 (402) 472-3337

GRANT PERIOD: January 1, 1976 - December 31, 1976

OBJECTIVES OR PURPOSES

The Nebraska State Department of Education has developed a plan for the conceptualization, design, development, and implementation of a vocational information system encompassing six major phases necessary to support administrative decisions. Of the six phases, embracing assessment, priority determination, design, testing, implementation, and evaluation, the first three were completed during the initial period of support. During the second period of support, Phases IV, V, and VI will be pursued with the following objectives:

1. To test the components of the vocational information system through a trial run with a sample of local school districts using instruments, procedures and computer programs developed and adapted during Phases I, II, and III, during 1976.

2. To modify instruments, etc., as prescribed by evaluation during the sample testing.

3. To diffuse the revised instruments, etc., into the administrative activities of the State Department's Division of Vocational Education.

4. To provide for continuous evaluation and adjustment through scheduled system review and modification (Phase VI).

PROCEDURE OR APPROACH

The Test Phase will support validation of instruments and system through a trial run of the entire program with a selected sample of local schools. The Implementation Phase will consist of installation and training for operation of the system by staff of the Division

of Vocational Education. Training requirements will be determined by the advisory committee and division staff.

EXPECTED CONTRIBUTION TO EDUCATION

The expected result of the project is the further development and eventual implementation of an information system supportive to the administrative function of the referenced Division. This project should provide the vehicle for adjusting administrative staff to new functions of improved vocational education planning and administration, and provide input to national data gathering efforts. It would also compile data for evaluation decisions regarding costs of manual data handling compared to automated and semiautomated data handling for vocational education program reporting.

PROJECT ABSTRACT

PROJECT NUMBER: 498AH50177

TITLE: Comprehensive Planning and Management of Washington State Vocational Education

PROJECT DIRECTOR AND ORGANIZATION:
Mr. Laurence H. Flinn
Program Specialist
State of Washington Coordinating Council for Occupational Education
Olympia, Washington 98504 (206) 753-1300

GRANT PERIOD: June 1, 1975 - November 20, 1976

OBJECTIVES OR PURPOSES

1. Implement reorganization and reorientation from a traditional educational to a management organization and structure.

2. Improve existing systems to provide information needed by State Vocational Administration for planning and management programs.

3. Improve previous accomplishments in developing a manpower forecast and planning system for vocational education at both the state and local levels.

4. Improve interfaces with both State and National sources and users of information needed to plan and manage vocational education programs.

5. Solicit and support special studies for feasibility and problem solving pursuant to extending, expanding, and implementing improved forecasts, planning and management at the State and local level.

6. Provide the necessary information and training necessary for the public, and state and local administration, to understand and use the management systems and techniques developed, to improve delivery of vocational education services at both state and local levels.

PROCEDURE OR APPROACH

In achieving the previously stated goals, a vocational education program code/census code matching model will be developed and validated; a five year vocational education forecast for the state will be produced and the process documented. Follow-on assistance and grant supports will be provided to pilot schools currently implementing forecasting techniques, to support local planning and management of vocational education. Local research studies will also be supported to determine the feasibility and practical implementation of planning and management systems at the local level. Vocational administrators and key public opinion leaders will be oriented and trained on the implementation of the planning and management systems.

EXPECTED CONTRIBUTION TO EDUCATION

This project will develop a forecast capability to support comprehensive planning, as well as the development of a management and organization structure for improved service delivery.